Postel 14798

NWG/RFC# 469
NIC 14798

Michael D. Kudlick MDK (SRI-ARC)
8-MAR-73

Rcvd 14MAR73

Network Mail Meeting Summary

Introduction 1

The purpose of this RFC is to briefly summarize, from the NIC's viewpoint, the principal conclusions reached at the Network Mail Meeting held Friday, February 23 1973, at SRI-ARC. 1a

Please refer to RFC #475 (NIC 14919) for Abhay Bhushan's comprehensive summary of the issues discussed at the meeting. 1a1

There is no major disagreement between the present RFC and RFC #475. 1a2

RFC #453 (NIC 14317) contains background information on the meeting. 1a3

RFC #479 (NIC 14948) describes what the NIC would like to see included in the File Transfer Protocol for Network Mail purposes, and also describes briefly how the NIC would use the information. 1a4

The present RFC is organized as follows: 1b

Conclusions
Discussion
Attendees 1b1

Conclusions 2

Additional FTP mail requirements were decided upon. These would be implemented as a new mail command, with the following subcommands: 2a

TO 2a1

This field is explicitly allowed to contain multiple addressees, with a standard syntax: user@host. 2a1a

FROM 2a2

This field provides a return-address for notification of undeliverable mail, as well as a clearcut identification of the sender for the recipient's information.. 2a2a

AUTHOR 2a3

This field denotes the author of the mail. There may be multiple authors. 2a3a

TITLE 2a4

Tne "title" (i.e. subject) of the mail is to be terminated by period carriage-return. 2a4a

ACKNOWLEDGEMENT success / failure (time-out) / normal 2a5

For use by tne intermediate host, probably the NIC in most cases, to tell the sender what happened to his attempt to send mail. (Note: "normal" wasn't defined.) 2a5a

RECORDED jnumber / null 2a6

Note: "jnumber" is the pre-assigned accession number (NIC number), to be used when known. 2a6a

The "RECORDED" subcommand provides for the option of having the mail recorded. Information given with this subcommand would be recognized at the NIC. Options are: 2a6b

to be recorded (in NIC journal) only,
to be recorded and distributed,
to be distributed only. 2a6b1

This field would also be used to inform the recipient that the mail has been recorded. 2a6c

(In retrospect, it may be preferable to have a separate command to inform the recipient of this fact, but no decision on this was made at the 23-Feb-73 meeting.) 2a6c1

TYPE long / urgent / ordinary 2a7

This allows the recipient site to take whatever action it thinks appropriate in storing the mail. 2a7a

TEXT / FILE / CITATION 2a8

TEXT 2a8a

This field is for the text of the mail message. 2a8a1

FILE 2a8b

The purpose of this field is unclear to me. Does it contain a machine readable pointer to the file that the sender wishes the recipient to read? 2a8b1

CITATION 2a8c

This field is a person-readable pointer to the file that the sender wishes the recipient to read. When the citation command is used, no mail is sent other than the citation. 2a8c1

2add

Discussion 3

Introduction 3a.

The key aspects in the solution are: 3a1

1) It is based on FTP. 3a1a

2) It uses the NIC without requiring direct use of NLS. 3a1b

3) There is a mechanism for uniformity in the use of user identifications. 3a1c

4) There is a mechanism for recording the mail for later reference. 3a1d

These issues are covered in the discussion that follows. 3a2

New FTP Mail Subcommands 3b

TO 3b1

Addressee Format 3b1a

The standard form of the address is: user@host 3b1a1

"User" may be an individual's last name; or it may be whatever other identification the recipient has chosen AND has made known to the rest of the network. 3b1a2

If the intended host doesn't recognize the intended recipient's identification, then it sends back an "undeliverable" mail message to the sender's host. It is up to the individual to keep

the NIC informed of his wherabouts; otherwise, he may not get his mail on time. 3b1a2a

NIC Role 3b1b

The NIC need have no role at all for mail sent from point A to point B, whenever that mail is not to be recorded at the NIC. 3b1b1

For mail that is to be recorded at the NIC, the RECORDED subcommand is to be used. 3b1b2

Also, when the sender does not know the standard address of the recipients, he may use the NIC to obtain this information. 3b1b3

Idents and Addresses 3b1c

The NIC will modify its identification files to include the "user@host" standard address for each individual. 3b1c1

Sites may ask the NIC to translate from NIC Ident, or from a user's last name, to the standard address. A query facility will be made available at the NIC to do the translation on request. The translation service will also be available for "group idents". 3b1c1a

This service would be FTP-like, in terms of the protocol it accepts, but would not be within FTP itself. A different server process would handle Ident translation requests. 3b1c1b

Translation will also be done at the NIC when the NIC is used as an intermediate point on the delivery route. 3b1c1c

The NIC could be an intermediate point for recording the mail as a NIC journal item, and for forwarding the mail to its ultimate destinations. During this process, the NIC would translate from NIC idents to standard addresses. 3b1c1c1

In the NIC ident files, provision already exists to specify hardcopy or on-line delivery of recorded (NIC Journal) mail. 3b1c2

This provision will be extended to include a "network" attribute, which means "deliver the mail to the host of this person". 3b1c2a

The network attribute may be qualified by restricting all mail to be kept at the sender, with only a notification message actually mailed. 3b1c2b

Notification would be in the form of a citation giving "to", "from", "title", "date of submission", and "location of mail". 3b1c2c

TIP Users 3b1d

To enable TIP users to have access to the mail system, both for sending and receiving mail, it was suggested that some hosts will have to be the "home" sites for these users (but no more than one "home" site per user). 3b1d1

That is, an account that allows a TIP user to send and receive mail will have to be established at such a host. 3b1d2

For the present, any TIP user can use the SRI-ARC system for his mail requirements. 3b1d2a

An alternate solution, that TIP's be equipped with a hardcopy device that is continuously available for printing mail, was discarded in favor of the above approach. 3b1d3

FROM 3b2

The "FROM" command in FTP, identifies the sender in "standard address" form. 3b2a

This will allow "undeliverable" mail notices to be sent back to the originator. 3b2a1

The default condition is that the sender's host must retain the mail until it is "delivered" to the recipient's host. 3b2a1a

"Delivered" means that the recipient's host has accepted the mail. It does NOT mean that the recipient has READ the mail. 3b2a1a1

Alternatively, the sender may designate that an intermediate host store the mail. Then the intermediate host has the responsibility of storing the mail until it is "delivered" to all intended recipients. 3b2a1b

The "ACKNOWLEDGEMENT" command will allow an optional, positive acknowledgement to be given to the originator of the mail (the "FROM" addressee), stating that the mail was delivered. 3b2a2

AUTHOR 3b3

The AUTHOR may be several persons. For recorded documents the authors appear separately in the index of authors, to facilitate searching for mail when an author is known, but the title and location of the mail are unknown. 3b3a

TITLE 3b4

The TITLE field is especially useful for recorded mail, since indexes on key words in the title can be produced relatively easily, and facilitate searching for mail. 3b4a

For this reason, the title should be a succinct indicator of the contents. 3b4b

ACKNOWLEDGEMENT 3b5

Acknowledgement of failure to deliver should be given to the sender. 3b5a

An optional, positive acknowledgement of successful delivery to the recipient's sitename will be given on request of sender (like U.S. CERTIFIED mail). 3b5a1

No acknowledgement that the recipient actually saw the mail will be given (comparable to not having U.S. REGISTERED mail). 3b5a2

RECORDED 3b6

The concept of "recorded" mail is that a permanent record of the mail is kept centrally, to allow future references and re-readings of the mail to be made. 3b6a

For example, in the NIC Journal system, a record is

kept of all the items entered into the Journal. From this record, author, title-word, and NIC number indexes are produced to allow for references and re-readings. 3b6a1

The key to retrieval of recorded Journal items is the use of an accession number (the NIC number). This essentially removes the possibility of duplicate filenames being used. 3b6a2

The basic aspect of recorded mail which was discussed at the mail meeting is the assignment of an "accession" number. 3b6b

It was decided to get the accession numbers from the NIC on an as-needed basis, without pre-assignment and without local assignment of numbers. 3b6b1

This subject may be reviewed in the future. Local assignment may be desirable to prevent the NIC from becoming a bottleneck in the mail process. 3b6b2

It was pointed out that local assignment of numbers would be un-ambiguous if the numbers included some information such as sitename, date, and time. 3b6b3

One other problem exits, namely "where is the recorded document?". 3b6c

Initially the document should be in the NIC, but ultimately it could be anywhere on the Network, provided only that there is a central mechanism for indexing and cataloging all the recorded documents. 3b6c1

The pathname to the recorded document would then include filename and sitename. 3b6c2

TYPE 3b7

The TYPE subcommand was a result of a discussion on the problems of large mail files, and the associated question of who would pay for the processing and storing of these files. 3b7a

The main decisions made were: 3b7b

a) The processing, transmittal, and storage costs of sending mail should be borne at the sender's host. 3b7b1

b) The processing and storage costs of receiving mail should be borne at the recipient's host initially, as a default. 3b7b2

Information to enable the recipient host to make an intelligent decision about where to store the incoming mail are passed along via the TYPE command. 3b7c

The recipient host will have the local option of providing either of the following services: 3b7c1

a) free use of system to send mail;
b) free use of system to receive mail, i.e. login not required for delivery over the Network. (A possible alternative is use of a "mail" account, or use of the recipient's account, for processing and storage of the incoming mail.) 3b7c1a

TEXT / FILE / CITATION 3b8

TEXT 3b8a

This field is for the text of the mail message. 3b8a1

FILE 3b8b

The purpose of this field is unclear to me. Does it contain a machine readable pointer to the file that the sender wishes the recipient to read? 3b8b1

CITATION 3b8c

The citation is a person-readable pointer to the file that the sender wishes the recipient to read. 3b8c1

An alternative to sending entire messages or files over the Network is to use the "CITATION" mechanism. With this, the sender sends a short message (the citation) saying, in effect, "please read file X at site Y". 3b8c2

This alternative would be especially useful for 3b8c2a

a) mail that is distributed with group idents (to all liaisons, for example), and 3b8c2b

b) "long" files (size not defined) that the recipient may not be immediately interested in. 3b8c2c

However no method of enforcing use of this alternative was discussed. It will be up to the recipients to devise a scheme satisfactory to them. 3c6c2a

Other General Discussion 3c

Bob Kahn placed on the floor the following question (I paraphrase): 3c1

Can't the design of a mail system be made to include alternative sources of data and alternative modes of operation, unless exclusion of these alternatives can be quantitatively defended? 3c1a

Particular aspects of this question are: 3c1b

1) What is the desirability and difficulty of admitting different data sources into the mail system? 3c1c

What are the "boundaries" that divide permitted from prohibited data sources? 3c1c1

What is the quantitative distinction between deferred and realtime mail? 3c1c2

Will the design we come up with allow such things as 3c1c3

a) handling a calendar that reflects the known and anticipated whereabouts of people so that meetings can be scheduled sensibly? 3c1c3a

b) formatting the mail contents for later query and other information handling? 3c1c3b

2) Whatever primitives we implement, can't they be designed so as not to preclude things like Tenex "linking"? 3c1d

This requires two-way data communication paths. 3c1d1

How do we specify and get the attention of a "sink" for the data stream? 3c1d2

e.g., for interprocess communication, and for Tenex-type "linking". 3c1d2a

The general reaction to this discussion was one of perspective: 3c2

In the scheme of things that could be considered "point-to-point communication", mailbox-type of communication is not the most general kind. 3c2a

AKB listed several types of communication problems: 3c2b

program-program communication
people-people real-time communication, e.g. Tenex-type "links"
computer teleconferencing
mailbox communication: cataloging, storage
protocols: host-host, telnet, file transfer 3c2b1

A design for a mailbox-type system won't be required to encompass the problems of, say, a computer teleconferencing system, which has attributes (real-time, video, very large volume of data to be transferred, to name some) that are not attributes of a mail-box system. 3c2c

Attendees at the Network Mail Meeting 2/23/73 at SRI-ARC 4

	Nancy Mimno	BBN
ACB	Alan Bomberger	AMES-67
AKB	Abhay Bhushan	MIT-DMCG
AWH	Wayne Hathaway	AMES-67
CHI	Charles Irby	SRI-ARC
DHC	Dave Crocker	UCLA-NMC
JBP	Jon Postel	UCLA-NMC
JDH	Dave Hopper	SRI-ARC
JEW	Jim White	SRI-ARC
LPD	Peter Deutsch	PARC-MAXC
MCK	Mark Krilanovich	UCSB-MOD75
MDK	Mike Kudlick	SRI-ARC
REK2	Bob Kahn	ARPA
RKK	Rajendra Kanodia	MIT-MULTICS
RST	Ray Tomlinson	BBN-TENEX

4a

4c